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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MANDALA, VICTOR A	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H'A

Office Action Summary	Application No.	Applicant(s)	
	10/789,953	NARASIMHAN ET AL.	
	Examiner	Art Unit	
	Victor A. Mandala Jr.	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute; cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-54* is/are pending in the application.

4a) Of the above claim(s) *6-24,31-33 and 39-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-5, 25-30,34-38,&46-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/2/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 4, 25, 26, 34-38, 47-50, and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,683,244 Fujimori et al.

1. Referring to claim 1, a barrier structure, comprising: a densified amorphous dielectric layer, (Figure 1 #8), deposited on a substrate by pulsed-DC, substrate, (Figure 1 #2), biased physical vapor deposition, (See ** on the next page), a soft-metal, (Figure 1 #3 Col. 7 Lines 20-24 Aluminum), at the interface between the densified amorphous dielectric layer, (Figure 1 #8), and the substrate, (Figure 1 #2), wherein the strain, (See *** below), between the densified amorphous dielectric layer, (Figure 1 #8), and the substrate, (Figure 1 #2), is reduced by the soft-metal, (Figure 1 #3), and wherein the densified amorphous dielectric layer, (Figure 1 #8), is a barrier layer, (Figure 1 #8 Col. 12 Lines 64-66).

** Initially, and with respect to claims 1, 3, 4, 25, 26, 34-38, 47-50, and 52-54, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the

final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

*** Fujimori et al. teaches all of the claimed matter, but is silent on the aluminum metal layer reducing the strain between the substrate and the dielectric layer, but the Applicant's specification on page 23 paragraph 070 line 3 recites the metal layer to also be aluminum, hence it would be obvious to one having skill in the art to know that the aluminum layer would reduce strain between the substrate and the dielectric layer.

2. Referring to claim 3, a layer of claim 1, wherein the barrier layer is also an optical layer, (Col. 12 Lines 56-66).

3. Referring to claim 4, a layer of claim 3, wherein the barrier layer includes a TiO_2 layer, (Col. 12 Lines 64-66).

4. Referring to claim 25, a layer of claim 1, wherein the dielectric film is TiO_2, (Col. 12 Lines 64-66).

5. Referring to claim 26, a layer of claim 1, wherein a target utilized to form the dielectric film has a concentration of 92% A1 and 8% Si, (See ** above and See */*/ below).

// Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the

Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

6. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less then about 1 X 10^{-2} gm/m^2/day, (See */* below).

/ Fujimori et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Fujimori et al. teaches the dielectric layer to be made out of TiO_2, (Col. 12 Lines 64-66) and the Applicant's specification teaches the dielectric material to be the same, (See claims 5 and 25), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

7. Referring to claim 35, a structure of claim 1, wherein an optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, (See *//* below).

// Fujimori et al. teaches all of the claimed matter, but is silent on the optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, but Fujimori et al. teaches the same material for the dielectric material and the same range of thickness, hence it would be obvious to one having skill in the art at the time the invention was made to know that the optical attenuation through the Fujimori et al.'s barrier layer is less than about 0.1 dB/cm in a continuous film.

8. Referring to claim 36, a structure of claim 1, wherein the barrier layer has a thickness less than about 500 nm, (Col. 12 Lines 22-25).

9. Referring to claim 37 a structure of claim 36, wherein the water vapor water vapor transmission rate through the barrier layer, (Figure 1 #8), is less than about 1 X 10^{-2} gm/m^2/day.

/ Fujimori et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Fujimori et al. teaches the dielectric layer to be made out of TiO_2, (Col. 12 Lines 64-66), and the Applicant's specification teaches the dielectric material to be the same, (See claims 5, 25, and 50), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

10. Referring to claim 38, a structure of claim 1, wherein a thickness of the barrier layer is less than about 1 micron, (Col. 12 Lines 22-25), and the water vapor water vapor transmission rate through the barrier layer, (Figure 1 #8), is less than about 1 X 10^{-2} gm/m^2/day, (see */* below).

/ Fujimori et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Fujimori et al. teaches the dielectric layer to be made out of TiO_2, (Col. 12 Lines 64-66), and the Applicant's specification teaches the dielectric material to be the same, (See claims 5, 25, and 50), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

11. Referring to claim 47, a dielectric layer of claim 1, wherein the barrier layer is an electrical layer, (Col. 12 Lines 64-66).

12. Referring to claim 48, a barrier structure, comprising: a densified amorphous dielectric layer, (Figure 1 #8), deposited on a substrate, (Figure 1 #2), by pulsed-DC, substrate biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer, (Figure 1 #8), is a barrier layer, and wherein a water vapor transmission rate through the barrier layer, (Figure 1 #8), is less than about 1 X 10^{-2} gm/m^2/day.

/ Fujimori et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Fujimori et al. teaches the dielectric layer to be made out of TiO_2, (Col. 12 Lines 64-66), and the Applicant's specification teaches the dielectric material to be the same, (See claims 5, 25, and 50), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

** Initially, and with respect to claims 1, 3, 4, 25, 26, 34-38, 47-50, and 52-54, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

13. Referring to claim 49, a structure of claim 48, wherein the barrier layer is also an optical layer, (Col. 12 Lines 56-66).

14. Referring to claim 50, a structure of claim 48, wherein the barrier layer includes a TiO_2 layer, (Col. 12 Lines 64-66).

15. Referring to claim 52, a structure of claim 48, wherein an optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, (See *//* below).

// Fujimori et al. teaches all of the claimed matter, but is silent on the optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, but Fujimori et al. teaches the same material for the dielectric material and the same range of thickness, hence it would be obvious to one having skill in the art at the time the invention was made to know that the optical attenuation through the Fujimori et al.'s barrier layer is less than about 0.1 dB/cm in a continuous film.

16. Referring to claim 53, a structure of claim 48, wherein the barrier layer has a thickness less than about 500 nm, (Col. 12 Lines 22-25).

17. Referring to claim 54, a structure of claim 48, further including a soft-metal, (Figure 1 #3 Col. 7 Lines 20-24 Aluminum), at the interface between the barrier layer, (Figure 1 #8), and the substrate, (Figure 1 #2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,683,244 Fujimori et al. in view of U.S. Patent No. 6,045,626 Yano et al.

18. Referring to claim 5, a layer of claim 3, wherein the barrier layer includes an Alumina/silica layer, (Figure 1Ã #22 and Col. 6 Lines 15-18 See //*// below).

//*// Fujimori et al. discloses the claimed invention except for the barrier layer to be Alumina/silica, but Yano et al. does in Col. 64 Lines 15-18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the barrier layer out of Alumina/silica, where Fujimori et al. teaches of an optical device and where Yano et al. is also in an optical device, hence being in the same level of skilled in the art, and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,683,244 Fujimori et al. in view of U.S. Patent No. 4,082,569 Evans Jr

19. Referring to claim 46, a dielectric layer of claim 1, wherein the soft-metal is indium-tin, (See *///* below).

/// Fujimori et al. discloses the claimed invention except for the soft metal to be Indium Tin, but Evans Jr does in Col. 4 Lines 10-14. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the soft metal layer out of Indium Tin, where Fujimori et al. teaches of an optical device and where Evans is also in an optical device, hence being in the same level of skilled in the art, and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 27-30, 34, 47, 48, 52, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2003/0178637 Chen et al. in view of U.S. Patent No. 5,702,829 Paidassi et al. and U.S. Patent No. 5,645,626 Edlund et al., (both Paidassi et al. and Edlund et al. are teaching references)

20. Referring to claim 1, a barrier structure, comprising: a densified amorphous dielectric layer, (Figure 4 #24), deposited on a substrate by pulsed-DC, substrate, (Figure 4 #20), biased physical vapor deposition, (See ** below), a soft-metal, (Figure 4 #22 and Paragraph 0024 Lines 9-14 titanium or nickel and see *** below), at the interface between the densified amorphous dielectric layer, (Figure 4 #24), and the substrate, (Figure 4 #20), wherein the strain, (Paragraph 0024 Lines 9-14 where it is taught layer #22 serves the purpose to enhance the adherence of the dielectric layer #24 to the substrate #20), between the densified amorphous dielectric layer, (Figure 4 #24), and the substrate, (Figure 4 #20), is reduced by the soft-metal, (Figure 4 #22 and Paragraph 0024 Lines 9-14 titanium or nickel and see *** below), and wherein the densified amorphous dielectric layer, (Figure 1 #8), is a barrier layer, (Figure 4 #24 Paragraph 0025 Lines 5-8).

** Initially, and with respect to claims 1, 27-30, 34, 47, 48, 52, and 54, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190

USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

**** Chen et al. teaches all of the claimed matter, but is silent on the titanium or nickel metal layer being of a soft metal, but U.S. Patent No. 5,702,829 Paidassi et al. Col. 3 Lines 19-21 teach that titanium is a soft metal and U.S. Patent No. 5,645,626 Edlund et al. teaches nickel to be a soft metal in Col. 12 Lines 34-35, hence it would be obvious to one having skill in the art to know that the titanium and nickel are a soft metal.

21. Referring to claim 27, a layer of claim 1, wherein the target utilized to form the dielectric film is formed from metallic magnesium, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

22. Referring to claim 28, a layer of claim 1, wherein the target material comprises materials chosen from a group consisting of Mg, Ta, Ti, A1, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

23. Referring to claim 29, a layer of claim 28, wherein the target material includes a concentration of rare earth metal, (See ** above).

24. Referring to claim 30, a layer of claim 1, wherein the target material comprises a sub-oxide of a group consisting of Mg, Ta, Ti, Al, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

25. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less then about 1 X 10^{-2} gm/m^2/day, (See */* below).

/ Chen et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Chen et al. teaches the dielectric layer to be made out of InO_2, (Paragraph 0025 Lines 5-8) and the Applicant's specification teaches the dielectric material to be the same, (Specification Page 15 Paragraph 053 Lines 5-7), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

26. Referring to claim 47, a dielectric layer of claim 1, wherein the barrier layer is an electrical layer, (Paragraph 0025 Lines 5-8).

27. Referring to claim 48, a barrier structure, comprising: a densified amorphous dielectric layer, (Figure 4 #24), deposited on a substrate, (Figure 4 #20), by pulsed-DC, substrate biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer, (Figure 4 #24), is a barrier layer, and wherein a water vapor transmission rate through the barrier layer, (Figure 4 #24 Paragraph 0025 Lines 5-8), is less than about 1 X 10^{-2} gm/m^2/day.

/ Chen et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Chen et al. teaches the dielectric layer to be made out of InO_2, (Paragraph 0025 Lines 5-8) and the Applicant's specification teaches the dielectric material to be the same, (Specification Page 15 Paragraph 053 Lines 5-7), hence it

would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

** Initially, and with respect to claims 1, 27-30, 34, 47, 48, 52, and 54, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

28. Referring to claim 52, a structure of claim 48, wherein an optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, (See *//* below).

// Chen et al. teaches all of the claimed matter, but is silent on the optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, but Chen et al. teaches the same material for the dielectric material, hence it would be obvious to one having skill in the art at the time the invention was made to know that the optical attenuation through the Chenet al.'s barrier layer is less than about 0.1 dB/cm in a continuous film.

29. Referring to claim 54, a structure of claim 48, further including a soft-metal, (Figure 4 #22 and Paragraph 0024 Lines 9-14 titanium or nickel and see *** below), at the interface between the barrier layer, (Figure 4 #24), and the substrate, (Figure 4 #20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 48, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,045,626 Yano et al.

30. Referring to claim 48, a barrier structure, comprising: a densified amorphous dielectric layer, (Figure 1A #21), deposited on a substrate, (Figure 1A #2), by pulsed-DC, substrate biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer, (Figure 1A #21), is a barrier layer, and wherein a water vapor transmission rate through the barrier layer, (Figure 1A #21 and See */* below), is less than about 1 X 10^{-2} gm/m^2/day.

/ Yano et al. teaches all of the claimed matter, but is silent on the water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day, but Yano et al. teaches the dielectric layer to be made out of AlO_x, (Figure 1A #22 and Col. 6 Lines 15-18), and the Applicant's specification teaches the dielectric material to be the same, (See claim 51), hence it would be obvious to one having skill in the art to know that the dielectric layer would have a water vapor transmission rate to be less then about 1 X 10^{-2} gm/m^2/day.

** Initially, and with respect to claims 48, 51, and 52, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

31. Referring to claim 51, a structure of claim 48, wherein the barrier layer includes an Alumina/silica layer, (Figure 1A #22 and Col. 6 Lines 15-18).

32. Referring to claim 52, a structure of claim 48, wherein an optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, (See *//* below).

// Yano et al. teaches all of the claimed matter, but is silent on the optical attenuation through the barrier layer is less than about 0.1 dB/cm in a continuous film, but Yano et al. teaches the same material for the dielectric material, hence it would be obvious to one having skill in the art at the time the invention was made to know that the optical attenuation through the Yano et al.'s barrier layer is less than about 0.1 dB/cm in a continuous film.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A. Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ
5/3/06

EVAN PERT
PRIMARY EXAMINER